

REMARKS

I. Introduction

Claims 16 and 19-25 are pending in the present application. Claim 16 has been amended. In view of the foregoing amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

II. Rejection of Claims 16, 19 and 20 under 35 U.S.C. § 103(a)

Claims 16, 19 and 20 were rejected under 35 U.S.C. § 103(a) as unpatentable over Pace (U.S. Patent No. 5,570,841) in view of Pontoppidan (U.S. Patent No. 6,267,307).

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). To the extent the Examiner may be relying on the doctrine of inherent disclosure in support of the obviousness rejection, the Examiner must provide a “basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flow from the teachings of the applied art.” (See M.P.E.P. § 2112; emphasis in original; see also Ex parte Levy, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)).

Amended claim 16 recites, in relevant parts, “a fixed valve seat element to cooperate with the valve-closure member . . . ; and a downstream valve end including an outlet component . . . , wherein: the fuel outlet includes at least one discharge orifice of the outlet component, the outlet component including the at least one discharge orifice is arranged directly downstream of the fixed valve seat element and permanently joined to the fixed valve seat element, the outlet component includes a coating around the at least one

discharge orifice, including at least in an immediate exterior of an outlet area of the at least one discharge orifice.”

In contrast to the above-recited features of amended claim 16, neither Pace nor Pontoppidan teaches or suggests “the outlet component including the at least one discharge orifice is arranged directly downstream of the fixed valve seat element and permanently joined to the fixed valve seat element, the outlet component includes a coating around the at least one discharge orifice, including at least in an immediate exterior of an outlet area of the at least one discharge orifice.” Pace discloses a fuel injector which has a two-layered orifice disk stack (22A and 22B) downstream from a valve-seat element 26. It is only downstream from this orifice disk stack 22 that a retainer element 28 (which the Examiner equates with the claimed “outlet component”) is provided, which ensures that orifice disks 22A and 22B are pressed against valve-seat element 26 and held in place there. Retainer element 28 of Pace thus has a pure holding and securing function for orifice disks 22A and 22B. The entire stack (22A and 22B) is additionally secured by an inwardly projecting collar 32 of valve-seat support 20, which grasps retainer element 28 from below, similar to crimping. (See, e.g., column 2, lines 9 through 18). Accordingly, retainer element 28 of Pace is clearly not directly and permanently connected to valve-seat element 26, as recited in amended claim 16. In addition, Pontoppidan also clearly fails to teach or suggest “the outlet component including the at least one discharge orifice is arranged directly downstream of the fixed valve seat element and permanently joined to the fixed valve seat element,” as recited in amended claim 16.

Independent of the above, the Examiner’s asserted modification of providing a coating to the passage 40 of Pace in an attempt to approximate the present claimed invention is clearly contradicted by the actual teachings of the applied references. Initially, it should be noted that the actual spray-discharge orifice of the fuel injector of Pace is through-orifice 62 of lower orifice disk 22B; passage 40 is a central through passage in retainer element 28, which has a very wide design so that the exit of the fuel is not impeded and negative wall wetting is excluded. Central through passage 40 thus in no way defines or forms an outflow jet; instead, the sole purpose of passage 40 is to provide an unimpeded fuel flow. It is therefore completely unnecessary to apply a coating to the passage 40 since coking residue at the passage 40 is unable to cause any meaningful negative cross section constrictions due to the large opening width of the passage.

For at least the foregoing reasons, claim 16 and its dependent claims 19 and 20 are not rendered obvious by the combination of Pace and Pontoppidan.

III. Rejection of Claims 21-25 under 35 U.S.C. § 103(a)

Claims 21-25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Pace in view of Pontoppidan, and in further view of Fedorovich (Soviet Union Published Patent Application No. 775364B). Applicants respectfully submit that claims 21-25 are patentable over the combination of Pace, Pontoppidan and Fedorovich for the following reasons.

Claims 21-25 ultimately depend on claim 16. In addition, Fedorovich merely relates to coating, and Fedorovich clearly does not cure the deficiency of the combination of Pace and Pontoppidan as applied against parent claim 16. Accordingly, it is respectfully submitted that dependent claims 21-25 are patentable over the combination of Pace, Pontoppidan and Fedorovich.

IV. Conclusion

It is therefore respectfully submitted that all of the presently pending claims 16 and 19-25 are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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